

# INTERNATIONAL SEARCH REPORT

Intern Application No  
PCT/JP2004/018769

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 F02D41/14 F02D41/06 F02D35/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 F02D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 014, no. 013 (M-918), 11 January 1990 (1990-01-11) & JP 01 257739 A (MAZDA MOTOR CORP), 13 October 1989 (1989-10-13) cited in the application abstract	1-3
X	US 4 753 204 A (KOJIMA ET AL) 28 June 1988 (1988-06-28) abstract	1-3
X	EP 0 262 956 A (MITSUBISHI DENKI KABUSHIKI KAISHA) 6 April 1988 (1988-04-06) abstract	1-3
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

<p>* Special categories of cited documents :</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the International filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the International filing date but later than the priority date claimed</p>		<p>"T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&amp;" document member of the same patent family</p>
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Date of the actual completion of the International search

5 April 2005

Date of mailing of the International search report

26. 04. 2005

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/029426 A1 (SURNILLA GOPICHANDRA ET AL) 13 February 2003 (2003-02-13) abstract	1-3
Y	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 07, 31 July 1996 (1996-07-31) & JP 08 075695 A (TOYOTA MOTOR CORP), 22 March 1996 (1996-03-22) cited in the application abstract	1-3
Y	PATENT ABSTRACTS OF JAPAN vol. 017, no. 231 (P-1532), 11 May 1993 (1993-05-11) & JP 04 359142 A (JAPAN ELECTRON CONTROL SYST CO LTD), 11 December 1992 (1992-12-11) cited in the application abstract	1-3
A	US 3 946 198 A (FOOTE ET AL) 23 March 1976 (1976-03-23) the whole document	1-3
A	US 5 740 675 A (SHIMASAKI ET AL) 21 April 1998 (1998-04-21) abstract	1-3
A	US 4 915 082 A (UCHINAMI ET AL) 10 April 1990 (1990-04-10) the whole document	1-3
A	US 5 606 855 A (TOMISAWA ET AL) 4 March 1997 (1997-03-04) abstract	4-1 0
A	US 6 305 348 B1 (GROSMOUGIN ANNE-LISE ET AL) 23 October 2001 (2001-10-23) abstract	4-1 0

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### Box II Observations where certain claims were found unsearchable (Continuation of Item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International Application No. PCT/JP2004 /018769

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-3

To reduce exhaust gas sesnor inaccuracies caused by sensor contamination.

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2. claims: 4-10

To improve exhaust gas sensor characteristics at engine start.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

Inter 1st Application No

PCT/JP2004/018769

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 01257739	A	13-10-1989	NONE	
US 4753204	A	28-06-1988	JP 1893686 C JP 6017894 B JP 63088242 A JP 63088243 A DE 3762648 D1 EP 0262956 A1 KR 9003857 B1 KR 9003856 B1	26-12-1994 09-03-1994 19-04-1988 19-04-1988 13-06-1990 06-04-1988 02-06-1990 02-06-1990
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